2017 ISOCS/IEEE International Symposium on Olfaction and Electronic Nose (ISOEN 2017)

Montreal, Quebec, Canada
28 – 31 May 2017
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Technical Program: Monday, May 29

11:00 - 12:00
Oral Session #1: Gas Sensor Arrays
Chair: Troy Nagle (NC State University, USA)
Ballroom A

SILICON NANOWIRE ARRAYS FOR THE PRECONCENTRATION AND JOULE HEATING-BASED DESORPTION OF TRACE VAPORS
Pehr Pehrsson (U.S. Naval Research Laboratory, USA)
Braden Giordano (U.S. Naval Research Laboratory, USA)
Daniel Ratchford (U.S. Naval Research Laboratory, USA)
Kevin J Johnson (U.S. Naval Research Laboratory, USA)

TOWARD HIGH-VALUE GAS SENSING IN WEARABLE AND DISTRIBUTED FORMATS: DISCRIMINATION OF COMPLEX PATTERNS OF VOLATILES USING MULTI-RESPONSE RFID SENSORS
Radislav Potyrailo (General Electric, USA)
Jon Dieringer (General Electric, USA)

DEVELOPMENT OF A NOVEL MULTIPLEXED OPTOELECTRONIC NOSE FOR ANALYSIS OF VOLATILE ORGANIC COMPOUNDS
Sophie Brenet (CEA Grenoble & Université Grenoble Alpes, France)
Aurelian John-Herpin (CEA Grenoble & Université Grenoble Alpes, France)
François-Xavier Gallat (CEA Grenoble & Université Grenoble Alpes, France)
Arnaud Buhot (CEA Grenoble & Université Grenoble Alpes, France)
Thierry Livache (CEA Grenoble & Université Grenoble Alpes, France)
Cyril Herrier (Aryballe Technologies, France)
Tristan Rousselle (Aryballe Technologies, France)
Yanxia Hou (CEA Grenoble & Université Grenoble Alpes, France)

13:30 - 14:30
Oral Session #2: Instrumentation
Chair: Susan L Rose-Pehrsson (U.S. Naval Research Laboratory, USA)
Ballroom A

TUNABLE FILTER AND DETECTOR TECHNOLOGY FOR MINIATURE INFRARED GAS SENSORS
Martin Ebermann (InfraTec GmbH, Germany)
Sebastian Lehmann (InfraTec GmbH, Germany)
Norbert Neumann (InfraTec GmbH, Germany)

DISCONTINUOUSLY OPERATED MOX SENSORS FOR LOW POWER APPLICATIONS
Javier Burgues (Univ. Barcelona & Inst. Bioengineering of Catalonia, Spain)
Jordi Fonollosa (Univ. Barcelona & Inst. Bioengineering of Catalonia, Spain)
Santiago Marco (Univ. Barcelona & Inst. Bioengineering of Catalonia, Spain)

A SIMPLE, PORTABLE, COMPUTER-CONTROLLED ODOR GENERATOR
James Covington (University of Warwick, United Kingdom)
Samuel Agbroko (University of Warwick, United Kingdom)
Akira Tiele (University of Warwick, United Kingdom)

14:30 - 15:30
Poster Session #1: Gas sensor arrays, instrumentation and applications
Chair: Eugenio Martinelli (Roma Tor Vergata University, USA)
Ballroom B

CONSIDERATIONS IN THE VAPOR ANALYSIS OF TRADITIONAL VS. HOMEMADE EXPLOSIVES
Lauryn DeGreeff (U.S. Naval Research Laboratory, USA)
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Anne-Claude Romain (University of Liège, Belgium)

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Vincenzo Di Lecce (Politecnico di Bari – AeFLab, Italy)
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Nabarun Bhattacharyya (Centre for Development of Advanced Computing, India)
Hena Ray (Centre for Development of Advanced Computing, India)
Alokesh Ghosh (Centre for Development of Advanced Computing, India)
Sabyasachi Majumdar (Centre for Development of Advanced Computing, India)
Suparna Parua Biswas (Centre for Development of Advanced Computing, India)
Rajib Bandyopadhyay (Jadavpur University, India)

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J. Vorobioff (CNEA, Argentina)
Norberto Boggio (CONICET, & Universidad Nacional de San Martín Argentina)
A. Lamagna (CNEA, Argentina)
The Salomón (CONICET & Instituto Nacional de Medicina Tropical, Argentina)
Carlos Rinaldi (CONICET, & Universidad Nacional de San Martín Argentina)

SPECTROCOLORIMETRY AND NANOWIRE GAS SENSOR DEVICE S3 FOR THE ANALYSIS OF PARMIGIANO REGGIANO CHEESE RIPENING

Veronica Sberveglieri (CNR-IBBR, Italy)
Manohar Prasad Bhandari (University of Brescia, Brescia, Italy)
Estefania Nunez Carmona (University of Brescia, Brescia, Italy)
Giulia Betto (University of Brescia, Brescia, Italy)
Matteo Soprani (University of Brescia, Brescia, Italy)
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Giorgio Sberveglieri (University of Brescia, Brescia, Italy)

MONITORING ODOR EMISSIONS FROM AN OIL & GAS PLANT: ELECTRONIC NOSE PERFORMANCE TESTING IN THE FIELD

Laura Capelli (Politecnico di Milano, Italy)
Selena Sironi (Politecnico di Milano, Italy)

MOLECULARLY IMPRINTED SENSOR FOR ISOBORNEOL BASED ON MULTILAYERED THIN FILMS OF IMPRINTED TiO2 NANOPARTICLES

Guilherme de Souza Braga (University of São Paulo, Brazil)
Fernando Fonseca (University of São Paulo, Brazil)

RAPID EVALUATION OF MICROBIAL COUNT IN RIVER WATER BASED ON HEADSPACE CONCENTRATION OF VOLATILE ORGANIC COMPOUNDS

Johnny Tang (Swinburne Univ. of Technology Sarawak Campus, Malaysia)
Phyllis Nishi (Swinburne Univ. of Technology Sarawak Campus, Malaysia)
Hong Siang Chua (Swinburne Univ. of Technology Sarawak Campus, Malaysia)
Krishna C Persaud (The University of Manchester, United Kingdom)
Sing Muk Ng (Swinburne University of Technology Sarawak Campus, Malaysia)

A NOVEL ODOR DELIVERY DEVICE FOR HOMEMADE EXPLOSIVE ANALYSIS

Lauryn DeGreeff (U.S. Naval Research Laboratory, USA)
Susan L Rose-Pehrsson (U.S. Naval Research Laboratory, USA)
Michael Malito (Nova Research Inc., USA)

SENSITIVE AND SELECTIVE GAS/VOC DETECTION USING MOS SENSOR ARRAY FOR WEARABLE AND MOBILE APPLICATIONS

Noureddine Tayebi (Intel Corp, USA)
Xing Su (Intel Corp, USA)
16:00 - 17:00
Standards Workshop
Chair: Susan Schiffman (NC State University, USA)
Ballroom A

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Technical Program: Tuesday, May 30

11:00 - 12:00
Oral Session #3: Data Processing
Chair: Santiago Marco (Institute for Bioengineering of Catalonia, Spain)
Ballroom A

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Oral Session #4: Applications
Chair: Andrew Cowell (Alpha MOS, USA)
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Subhankar Mukherjee (Centre for Development of Advanced Computing, India)
Souvik Pal (Centre for Development of Advanced Computing, India)
Abhra Pal (Centre for Development of Advanced Computing, India)
Devdulal Ghosh (Centre for Development of Advanced Computing, India)
Subrata Sarkar (Centre for Development of Advanced Computing, India)
Sunil Bhand (Biosensor Lab. Department of Chemistry, BITS, India)
Anoop Barooah (Tocklai Tea Research Institute, India)
Raktim Pal (Tocklai Tea Research Institute, India)
Nishant Maloo (Sir Dorabji Tata Trusts, WTC-1, India)
Jitendra Nayak (Sir Dorabji Tata Trust & Allied Trusts, WTC-1 India)
IMPROVING GAS DISPERSAL SIMULATION FOR MOBILE ROBOT OLFACTION: USING ROBOT-CREATED OCCUPANCY MAPS AND REMOTE GAS SENSORS IN THE SIMULATION LOOP

Han Fan (Örebro University, Sweden)
Muhammad Asif Arain (Örebro University)
Victor Hernandez Bennetts (Örebro University)
Erik Schaffernicht (Örebro University)
Achim Lilienthal (Örebro University)

IN SILICO MODELLING TO PREDICT THE ODOR PROFILE OF FOOD FROM ITS MOLECULAR COMPOSITION USING EXPERTS’ KNOWLEDGE, FUZZY LOGIC AND OPTIMIZATION: APPLICATION ON WINES

Alice Roche (Centre des Sciences du Goût et de l’Alimentation, INRA, CNRS, UBFC, France)
Nathalie Perrot (GMPA, AgroParisTech, INRA, Université Paris Saclay, France)
Thomas Chabin (GMPA, AgroParisTech, INRA, Université Paris Saclay, France)
Angélique Villière (ONIRIS, Groupe FLAVEUR, UMR GEPEA, CNRS, France)
Ronan Symoneaux (Unité de Recherche GRAPPE, Université Bretagne Loire, ESA, INRA, France)
Thierry Thomas-Danguin (Centre des Sciences du Goût et de l’Alimentation, INRA, CNRS, UBFC, France)

MIXTURE QUANTIFICATION IN THE PRESENCE OF UNKNOWN INTERFERENCES

Zelun Wang (Texas A&M University, USA)
Tiening Jin (Texas A&M University, USA)
Paotai Lin (Texas A&M University, USA)
Ricardo Gutierrez-Osuna (Texas A&M University, USA)

REAL-TIME CHEMICAL GAS SENSING OF PATHOGENIC MICROORGANISMS POLLUTION IN WASTEWATER

Matteo Soprani (University of Brescia & CNR-INO Sensor Lab, Italy)
Andrea Ponzoni (CNR-INO Sensor Lab, Italy)
Veronica Sberveglieri (CNR-IBBR & NASYS S.r.l., Italy)
Estefania Nunez Carmona (University of Brescia & CNR-INO Sensor Lab, Italy)
Manohar Prasad Bhandari (University of Brescia & CNR-INO Sensor Lab, Italy)
Giulia Bettò (University of Brescia & CNR-INO Sensor Lab, Italy)
Giorgio Sbervegliei (University of Brescia & CNR-INO Sensor Lab & NASYS S.r.l., Italy)

AN EXPLORATORY STUDY OF QUADROTOR’S PROPELLERS IMPACT USING 3D GAS DISPERSION SIMULATOR

Kok Seng Eu (Sunway University, Malaysia)
Kian Meng Yap (Sunway University, Malaysia)

SNIFFING SEVOFLURANE AND PROPOFOL IN EXHALATION FROM PATIENTS DURING BALANCED ANESTHESIA

Hao Dong (Zhejiang University, P.R. China)
Fengjiang Zhang (Zhejiang University School of Medicine, P.R. China)
Yingying Wang (Zhejiang University, P.R. China)
Fuyuan Wang (Zhejiang University, P.R. China)
Jing Chen (Zhejiang University, P.R. China)
Kanhar Ghulam Muhammad (Zhejiang University, P.R. China)
Xing Chen (Zhejiang University, P.R. China)

VIRTUAL ELECTRONIC NOSE WITH DIAGNOSIS MODEL FOR THE DETECTION OF HYDROGEN AND METHANE IN BREATH FROM GASTROINTESTINAL BACTERIA

Fan Gao (Zhejiang University, P.R. China)
Xi Zhang (Zhejiang University, P.R. China)
Xusheng Zhang (Zhejiang University, P.R. China)
Min Wang (Zhejiang University, P.R. China)
Ping Wang (Zhejiang University, P.R. China)
ABILITY OF DISCRIMINATION OF BREATH FROM SMOKER AND NON-SMOKER VOLUNTEERS BY USING AN ELECTRONIC NOSE BASED ON WO3 NANOWIRES AND SnO2 SENSORS

Tarik Saidi (Moulay Ismaïl University, Faculty of Sciences, Morocco)
Tesfalem Geremariam Welearegay (University Rovira y Virgili, Spain)
Omar Zaim (Moulay Ismaïl University, Faculty of Sciences, Morocco)
Oriol Gonzalez (University Rovira y Virgili, Spain)
Radu Ionescu (Rovira i Virgili University Tarragona, Spain)
Nezha El Bari (Moulay Ismaïl University, Faculty of Sciences, Morocco)
Benachir Bouchikhi (Moulay Ismaïl University, Faculty of Sciences, Morocco)

CHEMICAL SAMPLING DEVICE FOR UNDERWATER ROBOT: JET DISCHARGE MIMICKING CRAYFISH

Hanako Ishida (Tokyo University of Agriculture and Technology, Japan)
Tatsuki Mitsuishi (Tokyo University of Agriculture and Technology, Japan)
Ryuichi Takemura (Tokyo University of Agriculture and Technology, Japan)
Haruka Matsukura (Tokyo University of Agriculture and Technology, Japan)
Hiroshi Ishida (Tokyo University of Agriculture and Technology, Japan)

ONLINE ESTIMATION OF 2D WIND MAPS FOR OLFACTORY ROBOTS

Javier Monroy (Universidad de Málaga, Spain)
Mariano Jaimez (Universidad de Málaga, Spain & Technical University of Munich, Germany)
Javier Gonzalez-Jimenez (Universidad de Málaga, Spain)

BAYESIAN GAS SOURCE LOCALIZATION AND EXPLORATION WITH A MULTI-ROBOT SYSTEM USING PARTIAL DIFFERENTIAL EQUATION BASED MODELING

Thomas Wiedemann (German Aerospace Center, Germany)
Dmitriy Shutin (German Aerospace Center, Germany)
Victor Hernandez Bennett (Örebro University, Sweden)
Erik Schaaffnericht (Örebro University, Sweden)
Achim Lilienthal (Örebro University, Sweden)

A METHOD FOR SINGLE ODOR SOURCE DECLARATION IN THREE-DIMENSIONAL AIRFLOW ENVIRONMENTS

Yuan Tong (Tianjin University, P.R. China)
Qing-Hao Meng (Tianjin University, P.R. China)
Bing Luo (Tianjin University, P.R. China)
Ming Zeng (Tianjin University, P.R. China)
Ying Wang (Tianjin University, P.R. China)
Pei-Feng Qi (Tianjin University, P.R. China)

DUAL-TEMPERATURE MODE FOR QUANTITATIVE ANALYSIS OF GAS MIXTURES WITH MOX SENSOR

Stéphanie Madrolle (Université Grenoble Alpes, CEA, LETI, MINATEC Campus, France)
Pierre Grangeat (Université Grenoble Alpes, CEA, LETI, MINATEC Campus, France)
Christian Jutten (Université Grenoble Alpes, GIPSA-Lab, France)

A CNN-BASED SIMPLIFIED DATA PROCESSING METHOD FOR ELECTRONIC NOSE

Pei-Feng Qi (Tianjin University, P.R. China)
Qing-Hao Meng (Tianjin University, P.R. China)
Ming Zeng (Tianjin University, P.R. China)

THE SPARSE STRUCTURE OF NATURAL CHEMICAL ENVIRONMENTS

Marlene Berke (Cornell University, USA)
David Field (Cornell University, USA)
Thomas Cleland (Cornell University, USA)

FIRE DETECTION USING A GAS SENSOR ARRAY WITH SENSOR FUSION ALGORITHMS
09:30 - 10:30
Oral Session #5: Robotics
Chair: Achim Lilienthal (Örebro University, Sweden)
Ballroom A

FUGITIVE GAS EMISSION RATE ESTIMATION USING MULTIPLE HETEROGENEOUS MOBILE SENSORS
Jake R Gemerek (Cornell University, USA)
Silvia Ferrari (Cornell University, USA)
John Albertson (Cornell University, USA)

EXPLORATION AND LOCALIZATION OF A GAS SOURCE WITH MOX GAS SENSORS ON A MOBILE ROBOT - A GAUSSIAN REGRESSION BOUT AMPLITUDE APPROACH
Mikel Vuka (Politecnico di Milano, Italy)
Erik Schaffernicht (Örebro University, Sweden)
Michael Schmuker (University of Hertfordshire, United Kingdom)
Víctor Hernández Bennetts (Örebro University, Sweden)
Francesco Amigoni (Politecnico di Milano, Italy)
Achim Lilienthal (Örebro University, Sweden)

A ROBOTIC EXPERIMENT TOWARD UNDERSTANDING HUMAN GAS-SOURCE LOCALIZATION STRATEGIES
Andres Gongora (Universidad de Málaga, Spain)
Javier Monroy (Universidad de Málaga, Spain)
Javier González-Jiménez (Universidad de Málaga, Spain)

09:30 - 10:30
Oral Session #6: Breath Analysis
Chair: Pelagia Gouma (University of Texas at Arlington, USA)
Salle du Parc

SENSING STRATEGIES FOR DEVELOPMENT OF ELECTROCHEMICAL SENSORS FOR BREATH-BASED MEDICAL APPLICATIONS (INVITED)
Prabir Dutta (The Ohio State University, USA)

TOWARDS POINT OF CARE HUMAN ENERGY EXPENDITURE MEASUREMENT ON A HAND-HELD BREATH ANALYSER
Julian Gardner (University of Warwick, United Kingdom)
Timothy Vincent (University of Warwick, United Kingdom)

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Brady Gallant (University of Prince Edward Island, Canada)
Alexander Gamble (University of Prince Edward Island, Canada)
Clayton Harding (University of Prince Edward Island, Canada)
Javon Mayhew (University of Prince Edward Island, Canada)
Anthony Parker (University of Prince Edward Island, Canada)
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Cristina Medina-Plaza (Universidad de Valladolid, Spain)
Rocio Gonzalez-Anton (Universidad de Valladolid, Spain)
Cristina Garcia-Cabezón (Universidad de Valladolid, Spain)
Jose Antonio Fernandez-Escudero (ITACYL, Spain)
Enrique Barajas-Torres (ITACYL, Spain)
German Medrano-Vazquez (Bodega Cooperativa Cigales, Spain)
Fernando Martin-Pedrosa (Universidad de Valladolid, Spain)
Jose Antonio de Saja-Saez (Universidad de Valladolid, Spain)
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Philippe Bergonzo (CEA, LIST, Diamond Sensors Laboratory, France)

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Carlos Vale (CIIMAR, Portugal)
Alisa Rudnitskaya (University of Aveiro, Portugal)
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Oral Session #9: Bio-inspired Approaches
Chair: Krishna C Persaud (The University of Manchester, United Kingdom)
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David Hu (Georgia Institute of Technology, USA)

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